to all patients, even those who received antitoxin during the acuity of the disease. He employed this treatment in thirteen patients, all of whom were cured.

Opsonic Therapy in Skin Diseases.—Varney (*Jour. Amer. Med. Assoc.*, 1907, xlix, 316) concludes a report upon a series of patients affected with acne, furunculosis, sycosis, and whom he has subjected to vaccine treatment, with the following statements: In bacterial inoculations we possess a therapeutic agent with a specificity of great merit. Wright's method of obtaining the resisting power of a patient is also of unquestionable value as a guide to determine what will raise the resistance. Vaccines made from the patient's own invading microorganisms produce better results than stock vaccines. These results may be obtained with or without opsonic readings, but they will be better if controlled by frequent estimation of the patient's resistance. Proper vaccination, administered in appropriate doses and when the opsonic index indicates the necessity, is an efficient treatment of certain chronic local infections.

Vaccines in Surgical Therapy.—Bergey (*Univ. Penn. Med. Bull.*, 1907, xx, 50) states that bacterial vaccines may be employed as protective agents in surgery when it is evident that proper asepsis is impossible, and in patients of lowered vitality when the probability of secondary pyogenic infection is evident. In operations about the mouth, for instance, when it is impossible to control secondary infection, it is advisable to subject the patient to pre-operative inoculations so as to increase his opsonic index for staphylococci and streptococci. In diabetics and albuminurics, when the general vitality is low, it is believed that the success of surgical procedures can be increased by first raising the subject's opsonic index for the common pyogenic bacteria. Similarly secondary infection of tuberculous abscesses may be avoided. The use of the vaccines seems clearly indicated in accident wounds when asepsis is doubtful and when mutilation of tissues renders secondary infection probable.

Nuclein in the Prophylaxis and Treatment of Peritoneal Infections.—Chantemesse and Kahn (*Klin.-ther. Woch.*, 1907, xiv, 663) advise the employment of hypodermatic injections of the sodium salt of nucleinic acid in the prevention and treatment of peritonitis, on the ground that this substance has the property of increasing the number of leukocytes in the circulating blood, and thus increases the bodily powers of resistance to infection. Experimentation in man as well as in animals shows that after the injection of this substance a mononuclear leukocytosis takes place which reaches its height in about forty-eight hours and lasts from four to five days. An injection of 6 grains of sodium nucleinate in about 10 drams of sterile salt solution into the flank or into the fleshy part of the thigh may be painful and is likely to be followed in twenty-four hours by the signs of inflammation; these soon disappear. The injection may be repeated two or three days later and as many as three injections may be given in a single day. The leukocytes may thus be increased to twice or three times their normal number. In one patient with intestinal perforation who was treated by the nuclein injections, the opsonic index was increased from 1.6 to 2.5 twenty-four hours after these had been undertaken. Chantemesse and Kahn cite patients suffering from enteric fever in whom all the signs of intestinal perforation were present and in whom all these manifestations disappeared after the nuclein injections. It is possible that in these patients a small intestinal perforation may have been present, but it is difficult to be sure of this. The treatment is recommended in enteric fever with symptoms of perforation or peritonitis; it is suggested that it may give benefit in such conditions as pneumonia and erysipelas, and that it may be employed in the prophylaxis of operative peritonitis.

Formic Acid in Diphtheria.—KER and CROOM (*Edin. Med. Jour.*, 1907, vi, 487) have employed formic acid in 412 patients during 1906 at the Edinburgh City Hospital, with the result of diminishing the death rate by 1.8 per cent. over that of the previous year. Previously strychnine had been given as a heart tonic, but during 1906 formic acid in 25 per cent. aqueous solution, in doses of 5 to 20 minims every four hours, was substituted, the dosage being graduated rather by the severity of the infection than by the age of the patient. No change in the heart action was noted until after about forty-eight hours, and then the change was rather a negative one, that is to say, many of the severe infections did not show the expected cardiac weakness and irregularity; on the other hand, the pulse in many instances was much improved in character, as was the color of the skin and the general nutrition. Patients were observed who appeared doomed to die of heart-failure, but who rallied, this manifestation being attributable to the possible limiting effect of the formic acid upon the degeneration of the heart muscle or its beneficial action upon the undamaged muscular tissue. The most striking result of the treatment was the diminution of the number of instances of paralysis, the percentage being only 2.9, as against 9.09 in the previous year, which was the lowest in several years. If this diminution of the paralysis is really due to the formic acid, the point is raised why a muscular tonic should have such a result on a lesion usually regarded as primarily of nervous origin, although it is true that post-diphtheritic muscular weakness is rather a paresis than a complete paralysis. They conclude that the results obtained are distinctly encouraging, particularly in relation to the occurrence of cardiac failure and paralysis. Formic acid is, at least, an admirable tonic; it is safe and may be employed to the advantage of the patient.

PEDIATRICS.

UNDER THE CHARGE OF

LOUIS STARR, M.D., AND THOMPSON S. WESTCOTT, M.D.,

OF PHILADELPHIA.

Scarlatina and Duke's Disease.—A. C. COTTON (*Jour. Amer. Med. Assoc.*, 1907, xlix, 1417) believes in the entity of the fourth, or Duke's disease. He summarizes its clinical features as follows: The disease